

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A structure for representing a query statement having an atomic query element and a combined query element related by a combined operator, the atomic query element being a noniterative query element, the combined query element including a left subelement and a right subelement, the structure being stored on a computer-readable medium, the structure comprising:

an abstract superclass, wherein an instance of the abstract super class represents ~~representing~~ the query statement and ~~includes~~ including an operation on a combination of the combined operator, the atomic query element, and the combined query element, the superclass further comprising:

a first subclass, wherein an instance of the first subclass represents ~~representing~~ the atomic query element;

a second subclass, wherein an instance of the second subclass represents ~~representing~~ the combined query element ~~and~~ including a the left subelement and a the right subelement, and wherein each of the left subelement and the right subelement ~~subelements can be any~~ are representable by an instance of the first subclass or the second subclass of the abstract superclass; and

a relationship indicator representing a relationship between the first subclass and the second subclass as defined by the combined operator.

- 2-3. (Cancelled)
4. (Currently Amended) The structure of claim 1, wherein:
the instance of the abstract superclass represents a table reference;
the instance of the first subclass represents an unjoined table; and
the instance of the second subclass represents a joined table.
5. (Currently Amended) The structure of claim 1, wherein:
the instance of the abstract superclass represents a value expression;
the instance of the first subclass represents an atomic value expression; and
the instance of the second subclass comprises a combined value expression.
6. (Currently Amended) The structure of claim 1, wherein:
the instance of the abstract superclass represents a search condition;
the instance of the first subclass represents an atomic search condition; and
the instance of the second subclass represents a combined search condition.
7. (Currently Amended) The structure of claim 1, wherein:
the instance of the abstract superclass represents a group-by query element;
the instance of the first subclass represents a group; and
the instance of the second subclass represents a grouping set.

8. (Currently Amended) The structure of claim 1, wherein the ~~second subclass~~ further combined query element comprises a nested query language element.
9. (Currently Amended) The structure of claim 1, wherein the ~~second subclass~~ represents combined query element comprises an iterative query language element.
10. (Currently Amended) The structure of claim 1, further comprising:
means for receiving a the query statement having ~~an~~ the atomic query element and
a the combined query element associated by a the combined operator; and
means for populating the structure respectively with instances of the abstract superclass, the first subclass, and the second subclass that represent the received query statement.
11. (Currently Amended) The structure of claim 10, ~~further comprising wherein the~~ means for receiving the query statement includes means for receiving the query statement from a user-interface.
12. (Currently Amended) The structure of claim 10, ~~further comprising wherein the~~ means for receiving the query statement includes means for receiving the query statement from an application interface.
13. (Currently Amended) The structure of claim ~~3~~ 10, further comprising:

means responsive to selection of a ~~class or subclass~~ given instance of at least one populated model populated within the structure, for retrieving ~~only the~~ query elements populating the selected class or subclass instance and all subclasses of that class or subclass instance represented by the given instance; and

means for building a query statement from the retrieved query elements ~~using the relationships defined by the hierarchical class structure of the model~~.

14. (Cancelled)

15. (Currently Amended) A method for hierarchically representing a query statement having an atomic query element and a combined query element related by a combined operator, the atomic query element being a noniterative query element, the combined query element including a left subelement and a right subelement, the method comprising the steps of:

defining an abstract superclass, wherein an instance of the abstract super class represents ~~representing~~ the query element, ~~representing the query statement and includes~~ including an operation on a combination of the combined operator, the atomic query element, and the combined query element;

defining a first subclass of the abstract superclass, wherein an instance of the first subclass represents ~~representing~~ the atomic query element;

defining a second subclass of the abstract superclass, wherein an instance of the second subclass represents ~~representing~~ the combined query element and including a the left subelement and a the right subelement, and wherein each of the left subelement and

the right subelement ~~subelements comprises any class~~ are representable by an instance of the first subclass or the second subclass of the abstract superclass;

indicating a relationship between the first subclass and the second subclass defined by the combined operator; and

storing each of the abstract superclass, the first subclass, and the second subclass on a computer-readable medium.

16-17. (Cancelled)

18. (Currently Amended) The method of claim 15, wherein:

the instance of the abstract superclass represents a table reference;

the instance of the first subclass ~~class~~ represents an unjoined table; and

the instance of the second subclass ~~class~~ represents a joined table.

19. (Currently Amended) The method of claim 15, wherein:

the instance of the abstract superclass represents a value expression;

the instance of the first subclass ~~class~~ represents an atomic value expression; and

the instance of the second subclass ~~class~~ comprises a combined value expression.

20. (Currently Amended) The method of claim 15, wherein:

the instance of the abstract superclass represents a search condition;

the instance of the first subclass ~~class~~ represents an atomic search condition; and

the instance of the second subclass ~~class~~ represents a combined search condition.

21. (Currently Amended) The method of claim 15, wherein:
the instance of the abstract superclass represents a group-by query element;
the instance of the first subclass class represents a group; and
the instance of the second subclass class represents a grouping set.
22. (Currently Amended) The method of claim 15, wherein the ~~second class further~~
combined query element comprises a nested query language element.
23. (Currently Amended) The method of claim 15, wherein the ~~second class~~
~~represents~~ combined query element comprises an iterative query language element.
24. (Currently Amended) The method of claim 15, further comprising ~~the steps of:~~
~~receiving a query statement having an atomic query element and a combined~~
~~query element associated by a combined operator, and~~
respectively populating the structure with instances of the abstract superclass, the
first subclass, and the second subclass that represent the received query statement.
25. (Currently Amended) The method of claim 15, further comprising ~~the step of~~
receiving the query statement from a user-interface.
26. (Currently Amended) The method of claim 15, further comprising ~~the step of~~
receiving the query statement from an application interface.

27. (Currently Amended) The method of claim ~~47~~ 24, further comprising ~~the steps~~ of:

in response to a selection of a ~~class or subclass~~ given instance ~~of at least one~~ populated ~~model within the structure~~, retrieving ~~only the~~ query elements ~~populating the~~ ~~selected class or subclass instance and all subclasses of that class or subclass~~ represented by the given instance; and

building a query statement from the retrieved query elements ~~using the~~ ~~relationships defined by the hierarchical class structure of the model~~.

28-45. (Cancelled)

46. (New) A computer readable medium encoded with a computer program for representing a query statement having an atomic query element and a combined query element related by a combined operator, the atomic query element being a noniterative query element, the combined query element including a left subelement and a right subelement, the computer program comprising computer executable instructions for:

defining an abstract superclass, wherein an instance of the abstract super class represents the query element and includes an operation on a combination of the combined operator, the atomic query element, and the combined query element;

defining a first subclass of the abstract superclass, wherein an instance of the first subclass represents the atomic query element;

defining a second subclass of the abstract superclass, wherein an instance of the second subclass represents the combined query element including the left subelement and the right subelement, and wherein each of the left subelement and the right subelement are representable by an instance of the first subclass or the second subclass of the abstract superclass; and

indicating a relationship between the first subclass and the second subclass defined by the combined operator.

47. (New) The computer readable medium of claim 46, wherein:
 - the instance of the abstract superclass represents a table reference;
 - the instance of the first class represents an unjoined table; and
 - the instance of the second class represents a joined table.
48. (New) The computer readable medium of claim 46, wherein:
 - the instance of the abstract superclass represents a value expression;
 - the instance of the first subclass represents an atomic value expression; and
 - the instance of the second subclass comprises a combined value expression.
49. (New) The computer readable medium of claim 46, wherein:
 - the instance of the abstract superclass represents a search condition;
 - the instance of the first subclass represents an atomic search condition; and
 - the instance of the second subclass represents a combined search condition.

50. (New) The computer readable medium of claim 46, wherein:
- the instance of the abstract superclass represents a group-by query element;
 - the instance of the first subclass represents a group; and
 - the instance of the second subclass represents a grouping set.